



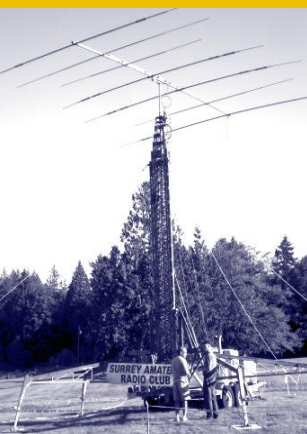
INSIDE THIS ISSUE...

- Our New Website
- Flea Market
- SEPARS Report
- Radio-Active
- Tech Talk
- 'Net' Working
- QRM
- Snapshot
- News You Can Lose
- President's Comments



The SARC Communicator is published monthly for members of the Surrey Amateur Radio Club.

SARC maintains a website at www.ve7sar.net that includes club history, meetings, news and other information.



Our New Web Pages

VE7SAR: A Fresh Look For Fall!

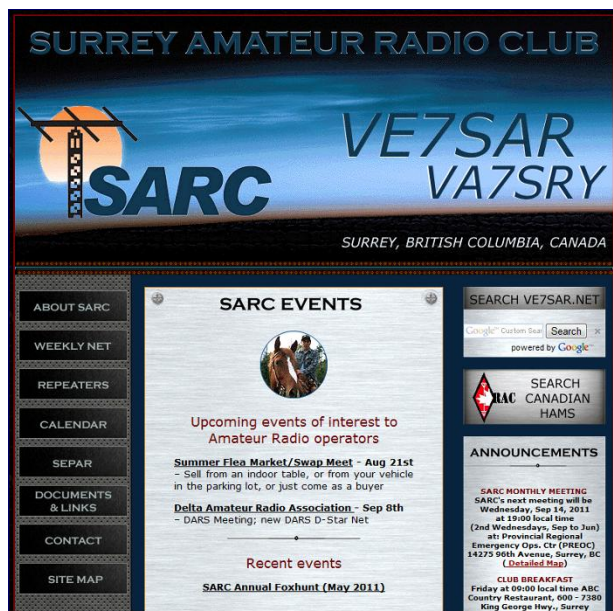
If you have not recently surfed to our web-site sarc.net it's time for a visit. Over the past several months, SARC Secretary Susan Eshelman VE7IIE has been working some HTML magic.

You'll find a bold new look with an easy to navigate menu that makes club happenings simpler to find. Our logo, callsigns and location are prominently displayed on the top of the page. On the left side are buttons for quick access to sub-pages that include club history, our weekly net, repeater information, calendar of events, our link to SEPAR, club documentation and links to related sites. You'll also find contact information for the club and a site map for a one-page overview of the entire website structure. Major links are also located at the bottom of the page.

On the right side is a box to search the contents of the VE7SAR website and below a box to search the RAC Amateur Radio licensee database. Below the search boxes are announcements of major events.

Down the center column are the features that currently include SARC events, a Technical/Operation section with summaries and links to recent meeting presentations, and a Club Services directory. You will find an amazing amount of information there, particularly if you're new to the hobby. It is also a scrapbook of photos from several years of presentations and club meetings.

At a recent Executive meeting, club directors decided to place past issues of the 'Communicator' club newsletter on the site. This will be a handy resource for old and new members alike as the articles contain a wealth of information and club history that we want



to archive. Prospective members, reading past newsletters and our many activities may be persuaded to join.

Susan still codes HTML the old fashioned way in a text editor rather than using programming software. This can be more complex but it results in simpler, smaller HTML files that load quickly and are compatible with any web browser. As with all SARC activities, your input is always welcome. Send us your feedback, positive or contrary. We want to keep SARC one of the top clubs (if not the top club) in the region and your involvement is important.

Hui Yee VE7YXG has been our webmaster and he will continue in this role, updating the new website on a frequent basis. Thanks for your past service Hui, it's much appreciated.

Visit the site often and stay up to date with what's happening at SARC!

SARC EXECUTIVE FOR 2011-2012

PRESIDENT

John Brodie VA7XB

VICE PRESIDENT

Bill Gipps VE7XS

SECRETARY

Susan Eshelman VE7IIE

TREASURER

Scott Hawrelak VE7HA

DIRECTORS

Kelvin Hall VA7KPH (SEPARS)

John Schouten VE7TI
(Communicator Editor)

Gary Skett VE7AS
(Education/Training)

George Merchant VE7QH
(Repeaters)

Bill Little VA7ZBL

Chris Zetner VA7CMZ

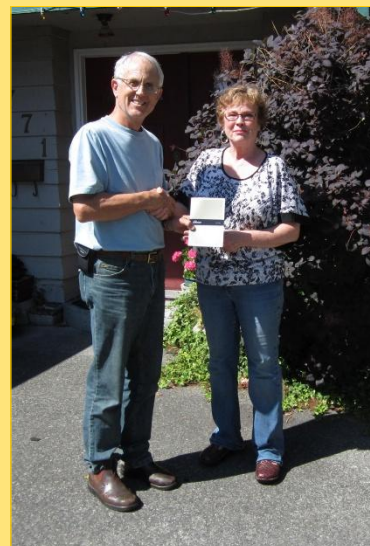
WEB MASTER

Hui Yee VE7YXG

SARC and LARA's Flea Market a Resounding Success

The ghosts of Sullivan Community Hall, the site of nearly a century of Surrey's pioneer history, were shaken loose on Sunday August 21st at Surrey ARC and Langley ARA's ham radio flea market, attended by 15 vendors, 32 volunteers and 134 buyers. The faithful participants were well represented - Bill Gipps VE7XS for Radio Amateurs of Canada, Ken Clarke VE7BC for the QSL Bureau, Kelvin Hall VA7KPH of SEPARS, Amel Krdzalic VA7KBA for BC Radiosport along with iCom, Burnaby ARC, Delta ARS, Com-West Radio, Fleetwood Digital and various individuals who promoted their particular interest or displayed their surplus items for sale.

- 1st prize: \$500 Fairmont Hotel gift certificate went to Bev Busse of Richmond (*photo right: SARC President John Brodie VA7XB presents the Raffle 1st Prize to Bev. The winning ticket was sold by SARC's Jinty Reid VA7JMR*)
- 2nd prize: Kobo e-reader went to Van Charnell
- 3rd prize: \$150 gift certificate for the KEG restaurant went to Don Dangelmaier



Surrey ARC was in the enviable position of having two large donations of equipment to dispose of. Judging from the speed at which the items disappeared from SARC's table, they must have been sufficiently well-priced to satisfy eager buyers. The donors would have been gratified to see that their items found good homes and that the club benefitted from the returns generated.

We do have to thank the large crew of volunteers from the two sponsoring clubs, too numerous to mention individually,

who managed vendor bookings, raffle ticket sales, staffed the kitchen and the admissions table, provided parking supervision, door security, cash management, unloading assistance to vendors, talk-in, 50/50 sales and staffing of the raffle booth. Thanks also to Anton VE7SSD, who recorded the event with his camera.

~ John Brodie VA7XB



The final figures aren't in yet, but we know that the event brought in significant profits to the sponsoring clubs from buyers' admission, table and tailgate sales, the raffle, 50/50 and kitchen sales. A

novel feature of this flea market is the opportunity for vendors to sell directly from their vehicles, which four of them did. The weather, always an unknown factor, cooperated on this occasion with the heavy rains conveniently delayed until the following day.



The Raffle Draw took place at the conclusion of the event, with the following winners recorded:

[More photos page 10](#)

SEPARS Report

Kelvin Hall VA7KPH



By the time this you read this article the summer will be over and we will be into the fall meetings and workshops. This past summer saw a successful Field Day and Canada Day where SEPAR had good contact with the public at both events. The first of the library events, at the Newton Library, was a great success and based upon this success SEPAR has been invited back for similar workshops. SEPAR is looking at some of the successful marketing ideas of other exhibitors at Canada Day to promote SEPAR within the community. The use of tattoo transfers, stickers and colouring pages for the younger crowd and QSL cards for the adult group will help promote our presence in the community's emergency response program. We are seeking your input as to what you and your family may have seen at other community events that attracted the public to their exhibits.

This coming fall will begin with the Thursday night meeting on September 15th followed by the Saturday morning workshop on September 24th. The workshop will be oriented towards the operation of the Radio Room in Fire-hall #1 and what to do if you are the first and possibly the only SEPAR member that can be there if a earthquake strikes. Ramp-up of the staffing as people arrive will be part of the workshop. In October SEPAR will be doing the second library event at the Fleetwood Library on Saturday October 22nd. We will incorporate this workshop into a learning event for the youth and also do a demonstration of what SEPAR is capable of doing in an emergency situation. More to follow on this as we work on the

agenda. Your skill sets will be welcomed to assist in making this successful and entertaining for the public.

SEPAR is always looking for new members to assist the community in times of emergency situations. SEPAR offers training in the Incident Command System (ICS), the use of radios during emergencies and the integration of SEPAR in the Emergency Operations Centre (EOC). If you are up to the challenge please contact me at va7kph@separs.net

Please join our Tuesday night net 1930 hrs on 147.360(+) tone 110.9



News From Delta

September 8th DARS Meeting: John McEwan from the Canadian Salvation Army has a video presentation about his deployment to Haiti after the earthquake. He will also be describing the role of the Salvation Army in BC in times of need. Everyone is welcome, but please let Gord VE7FKY know if you plan to attend: g5852651@telus.net

A DARS D-Star Net has started on Tuesdays at 7 pm. This is a local net and can only be accessed via RF on either VE7SUN - 440.725 + or VE7XNR - 444.850 + This repeater has been moved to the 1500 foot level on Saltspring Island and works well into various areas of the Lower Mainland. A portion of the net is open to other clubs to promote their events.

The Delta Amateur Radio Association Advanced Licensing Class is scheduled to begin Oct 27, Cost \$125.00 with an early bird special \$90 if paid prior to September 30, 2011 They will accept cash, cheque or Pay Pal Details on how to pay are on the website www.deltaamateurradio.com and look for courses on the left menu.

Before signing up please read on the advanced page what's expected of you and what the course is about.

Please email with any questions you may have: g5852651@telus.net - Gord VE7FKY

Radio-Active

Susan Eshelman VE7IIE



This month we're introducing another relatively new face in the SARC community -the author of our recent RadioActive profiles: Susan Eshelman VE7IIE. Susan got her Basic license in November of last year, and quickly got involved in club activities. She joined the Executive this year as Secretary, and recently completed a website re-design for VE7SAR.net.

Although her technical background never extended into the realm of electronics, Susan

found the Basic Ham class taught by VE7AS to be very inspiring. She was happy to discover that there are many doorways into the world of Amateur Radio, not all of them highly technical. Admitting with a smile that she's already accomplished some of most fundamental mistakes a person can make with a piece of coax, that hasn't kept her from diving into the ARRL Handbook on what will no doubt be a lifelong learning pursuit.

Susan got involved in Amateur Radio as part of a preparedness effort, inspired by the 2008 market crash. Working towards a simple, sustainable infrastructure for the family, she outfitted their kit with GMRS radios, FM transmitters, Sat phone and solar power gear, but quickly realized that ham radio was the cornerstone of a serious emergency comm plan. Google led her to the SARC website, and a phone call to Don Hamilton in April 2010 convinced her to join the Fall ham class.

Susan's interest in radio communications was also a carry-over from childhood. She grew up in the family business - her father's sound engineering company in Pennsylvania, which designed and installed large scale distributed audio/video systems. Susan spent her summers in the office from a young age, and worked full-time for a number of years on bids and specification documents. There was always a fascinating array of custom antenna builds going on in her father's shop, which inspired her enduring interest in antennas. She looks forward with anticipation to getting her own station set-up (a work in progress) and beginning her own serious program of playing with antennas.

Susan's father continues to inspire her interest in ham radio, and the two have been enjoying many phone chats on the subject. As a young man, he went to work as an engi-

neer for Hallicrafters, and in 1945, designed and built their S-38 receiver. The S-series was the first line of ham receivers to be produced inexpensively for mass marketing to consumers. On Susan's website, VE7IIE.com, you'll find a funny story her Dad shared from his Hallicrafters days, involving a monkey and hot pennies.

Influenced by her father's entrepreneurial spirit, Susan's professional background has been quite varied. With a college major in business admin/law (Southern Seminary), she's owned and run a number of companies over the years. After a few years in the Law Department at Hershey Foods, Susan got a stockbroker's license -- a field of work that inspired her to leave the business world altogether, on what turned into a 10-year spiritual sabbatical.

Immigrating to Canada in 1990, Susan opened an art gallery on Gabriola Island and met her husband Van, who owned galleries on Vancouver Island. Together, they launched the world's first fine art brokerage on the Internet, in 1995 (Art Vision International). That work led to her involvement in digital technology and eventually, software development. Over the next 10 years, she co-founded two companies with a business partner, developing advanced digital security systems employing quantum crypto tamper-proof containers (VeraSafe, Inc.) and a semantic search technology that runs predictive linguistics on a Google-style platform (Semantiks, Inc.).

With her partner in these ventures (a computer science Ph.D and patent agent), the two developed a patent and venture marketing business to help fund their own tech start-ups, and Susan's work in that field continues through Pacific IP, Inc. She finds the patent practice to be particularly helpful in her ham radio pursuits, because patent work is largely a process of deconstructive thinking. The process of rendering technical drawings for patents has also helped make electronics schematics more understandable, at least in principle. Nonetheless, she plans to keep the fire extinguisher close by when hooking up radio components.

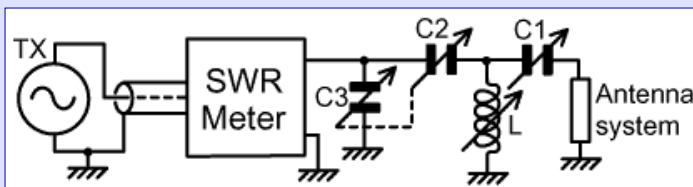
Susan and husband Van, from their home in the Newton area of Surrey, also run a small heirloom seed business, 4EverSeeds.com, which grew out of their preparedness and sustainability efforts. VE7IIE has also added Morse practice to her busy days, and looks forward to getting up to 'Field Day' speed. As time permits, she'd also like to get involved in SEPAR, which is a natural fit with her other interests. Susan also hopes to get active in contesting, and has been exploring the possibility of organizing a special event/contest with her ham friends in India.

Tech Talk

John Brodie VA7XB

The Ultimate Transmatch

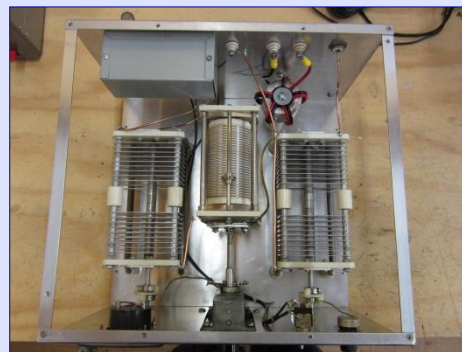
A few participants have asked me about the “Ultimate Transmatch” used at Field Day in conjunction with our “vee beam”. This device would today be called an “antenna tuner” which is really a misnomer because the device does not tune the antenna, rather it provides the transmitter with a 50 ohm resistive load by compensating for capacitive and inductive reactance present in the transmission line and antenna. The SWR protection circuits in modern transceivers require an SWR of 2: 1 or less if they are to deliver the full rated power of the transmitter section. If the forward power is all radiated from the antenna and none of it is reflected, the SWR will be 1:1 which is ideal, but seldom achieved. The Ultimate Transmatch became popular nearly 40 years ago when it was introduced by Lew McCoy in QST of July 1970. It is mainly renowned for its ability to match a wide range of impedances, far greater than the average “tuner”. In conjunction with the use of open wire feeder which is close to “lossless” compared with any transmission line you can name, it is an extremely useful device particularly when the antenna (in the case the vee beam) is non-resonant, i.e not cut for any particular band or frequency. I used it at home for several years to match my transmitter to an 80 m inverted vee fed with ladder line, on bands in which the SWR likely exceeded 50:1. Try that with your average tuner. The high SWR doesn’t much matter if the transmission line losses are low. I used the 80 m vee successfully on 80, 40, 20 and 15 m to work the world with 100 watts despite an SWR that was off-scale on my meter. If my feedline was coax instead of ladder line, the losses would have consumed most of the power and very little would have radiated.



Alas, the Ultimate Transmatch is no longer considered “ultimate” as the circuit has been supplanted with other variations that are considered superior. Modification of my unit to a more modern version would be a simple matter, and I intend to do it one of these days. The figure shows the basic circuit which is a basic T-network with an additional shunt capacitor placed across the

transmitter terminals and ganged to the transmitter-side capacitor in such a way that the two capacitors move together. Its chief disadvantage is that the T configuration is that of a high pass filter, which means that it does little to suppress harmonics or spurious signals that are higher than the desired frequency. Although not a perfect device, it saved the day for us at Field Day when the MFJ auto-tuner could not do the job. Here’s what David Knight G3YNH and Nigel Williams G3GFC say about the Ultimate Transmatch in *Impedance Matching. Part 2: Popular Matching Networks*:

An inauspicious fate awaits anything which presumes to call itself ‘The Ultimate’; although to be fair, it was probably so called because of its enormous matching range in comparison to the then-prevalent networks intended for use with co-ax fed antennas. The Ultimate transmatch must now be regarded as an obsolete circuit; but to those who still own and use such units, it should be obvious where to put the wire cutters. With the offending C3 removed from circuit, it should still be possible to match any impedance with occasional recourse to a dual-capacitor matching strategy; and by connecting the spare C3 across C2 it should be possible to increase the efficiency still further, provided that the minimum capacitance does not become too large for matching high impedance (high $|Z|$) loads at high frequencies.



VA7XB's home-built Ultimate Transmatch using roller inductor and two high-voltage variable capacitors, with SWR meter at left rear and 4:1 balun at right rear.



Application Notes

Gary Skett VE7AS



At one of our Friday breakfast meetings a conversation came up about how some of us have such a high noise level, a great many signals are lost in that noise. Depending on the frequency or band you listen to, some are experiencing 20db above S9 as their noise floor.... Me? I have to deal with a S7 to S9 noise floor on 80 metres, and a S3-S5 on other bands.

When I started looking into this topic, I was overwhelmed by the books, articles and white papers on the subject. There is a lot of information on both EMI [Electromagnetic Interference] and RFI [Radio Frequency Interference]. A new term has come into popular use which seems to mix the two into EMC [ElectroMagnetic Compatibility] which is the characteristic of any or all electronic devices to either not emit unwanted signals, and/or not be influenced or interfered with by other devices.

In Ham speak, we can simplify these terms by stating that RFI is interference caused by YOUR station equipment getting into other devices, from TVs, to electronic organs, to your touch controlled paper shredder. EMI is interference FROM other electronic devices which cause your receiver noise floor to rise. OK, not entirely technically correct, but it serves my purpose here... we can debate later.

As our lives become filled with technology, the likelihood of electronic interference increases. Every lamp dimmer, garage-door opener or other new technical "toy" contributes to the electrical noise around us. Many of these devices also "listen" to that growing noise and may react unpredictably to their electronic neighbours. Whether it's called EMI, RFI or TVI [Television Interference], unwanted interaction between intentional and unintentional receivers and transmitters has stimulated vigorous growth in the field of *electromagnetic compatibility* (EMC).

The scope of EMC includes all the ways in which electronic devices interact with each other and their environment. The primary aspect of EMC that concerns amateurs is interference to or from Amateur Radio communications. Sooner or later, nearly every Amateur Radio operator will have a problem with interference, but temper your dismay. Most cases of interference can be cured!

Since this is a huge subject to deal with, I will cover only the topic of reducing EMI *INTO* your receiver. In other words, what can you do to reduce [notice I didn't say "eliminate"] that S9 noise floor so you can hear the QRP or DX stations... or anyone for that matter. Even then, John will most likely have to break this subject into 2 or more bits spread over a few Communicators.

All cases of EMI involve a *source* of electromagnetic energy, a device that responds to this electromagnetic energy (*victim*) and a transmission *path* that allows energy to flow from the source to the victim. Sources include radio transmitters, receiver local oscillators, computing devices, electrical noise, lightning and other natural sources. There are three ways that EMI can travel from the source to the victim: radiation, conduction and induc-

tion. Radiated EMI propagates by electromagnetic radiation from the source, through space to the victim. A conducted signal travels over wires connected to the source and the victim. Induction occurs when two circuits are magnetically (and in some cases, electrically) coupled. Most EMI occurs via conduction, or some combination of radiation and conduction. For example, a signal is radiated by the source and picked up by a conductor attached to the victim (or directly by the victim's circuitry) and is then conducted into the victim. EMI from induction is rare.

Look Around – Aside from the brain, the eyes are a trouble shooter's best tool. Look around. Installation defects contribute to many EMI problems. Look for loose connections, shield breaks in a cable-TV installation or corroded contacts in a telephone installation. Fix these first.

Problems that occur only on harmonics of the fundamental signal usually indicate the transmitter. Harmonics can also be generated in nearby semiconductors, such as an unpowered VHF receiver left connected to an antenna, or a corroded connection in a tower guy wire. Harmonics can also be generated in the front-end components of the TV or radio experiencing interference. Is the wiring connected to the victim equipment resonant on one or more amateur bands? If so, a common-mode choke placed at the middle of the wiring may be an easy cure.

These are only a few of the questions you might need to ask yourself. As we discover what devices cause EMI, let's delve into types of EMI 'noise.'

First, it is worth keeping a log of exactly when the EMI occurs as this can give a clue to the possible source. Tuning across the affected band or bands can also give some clues about the source of the interference which normally falls into one of the following categories:

Narrow Band

Narrow band interference affects one or more spot frequencies in a band with little or no detectable interference in between these frequencies. On an SSB receiver, a true narrow band source would be heard as a tone, possibly rather rough but narrow enough to be reduced by means of a notch filter.

Broad Band with no peaks

If interference appears right across a band at about the same level with no peaks, it is classed as a broad band source.

Broad band with broad peaks

Some sources such as switch-mode power supplies and digital electronics produce broad band emissions with regularly spaced broad peaks. The spacing between the peaks indicates the fundamental frequency. The peaks may not be well defined so it is best to note the frequencies of 11 regularly spaced peaks and divide the difference between the highest and lowest by 10.

Broad band with narrow peaks

Some emissions are broad band but also contain narrow band signals as described above. This is characteristic of digital electronic circuitry.

Drift

The frequency of a narrow band emission may drift due to temperature changes. The times of these temperature changes can give some clues about the source. If it is crystal controlled, the drift may be very slight but if it uses a ceramic resonator, it may drift up to a few kHz at VHF or a few hundred Hz at HF.

Modulation

It is worth listening to the interference using FM, SSB and AM modes if possible. You may find one of the following characteristics:

No modulation

This may be a harmonic from a crystal oscillator.

60 or 120 Cycle [Hertz] buzz.

If the audio signal is viewed on an oscilloscope triggered on 'line', the trace stands perfectly still if the interference is synchronized to Hydro's 60 Hz.

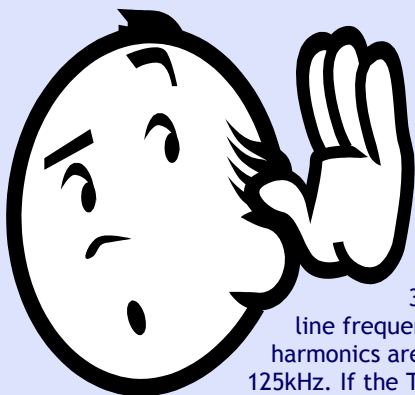
White noise

A steady hiss like the background noise level on the band but at a considerably higher level.

Other modulation

Some sources are modulated with a characteristic sound (see below).

Some residential sources of EMI



Television Installations -

The line time base frequency of 625 line television systems is 15.625kHz. Harmonics may be heard as narrow band signals on multiples of this frequency, for example, 3500 kHz, 3515.625kHz,

3531.25kHz, etc. As the line frequency is 1MHz divided by 64,

harmonics are found on multiples of 125kHz. If the TV is receiving an off-air

program, the harmonic will usually have a sound which changes with picture content when heard on an SSB or CW receiver. To prove that a TV set is the source, try watching another TV set (with low EMI!) and select different channels until you find one where changes in the picture coincide with changes in the sound heard on the radio.

Some large screen plasma TV sets radiate broadband interference mainly in the lower half of the HF band. Because of the large screen area most of the interference comes directly from the screen. Measures such as a mains filters are unlikely to be effective. Fortunately, so far as TV sets, are concerned "plasma" is an obsolete technique so incidences as interference should reduce as equipment is replaced.

Switch-mode power supplies

A switch-mode power supply (SMPS) generates a square wave at a frequency of 30 - 90kHz or more. On the LF, MF and lower HF bands, harmonics from an SMPS can produce broad band EMI with broad peaks and 100Hz modulation. The peaks are spaced at multiples of the switching frequency. On the higher HF bands and at VHF, the peaks may merge together.

TV power supplies

When heard on an AM or SSB receiver, the sound from a TV switch-mode power supply usually changes with picture content (see also TV line time base harmonics above) but is broad band and may peak at a certain frequency such as 14-18 MHz. The switch mode power supply also runs when in standby mode and its characteristics may change so that interference is only noticeable in standby mode. Emissions in standby mode are normally continuous but in some sets sold since 1999, the noise is modulated at about 8 - 10Hz in standby mode. This produces a 'chuff-chuff' noise like a fast steam train. With old Analogue TVs being discarded over the next few years, be prepared for new problems with digital TV.

TV 'set-top boxes' - the SHAW Box & PVR

There are various types of TV 'set-top box' for satellite TV, cable TV, digital terrestrial TV or video on demand via ADSL (Asymmetric Digital Subscriber Line). These normally have switch-mode power supplies that run continuously.

Lighting

If the EMI occurs mainly after dark, does it appear when a certain light or lights are on in a room nearby?

Electronic transformers - For lighting which uses 12 volt halogen spotlights, the transformers may either be a conventional type or an 'electronic transformer' which is a switch-mode power supply with AC output.

Compact fluorescent lamps (Low energy lamps) - most types, are electronic and contain a small switch mode power supply. There are also larger non-electronic types such as the Philips SL range which generate less EMI but have a heavy iron-cored choke.

Computer power supplies

In a desktop computer, the SMPS is normally in a screened box with a mains filter and may therefore produce much less EMI than a computer monitor where the SMPS may be unscreened. Laptop computers have an external AC power supply unit/charger which is normally an SMPS without screening.

Fax machines

The power supply runs 24 hours a day and it almost always a switch-mode type.

Electric Motors

EMI from an AC or DC electric motor with brushes and a commutator is broad band without peaks. Its pitch varies as the motor speed varies. The variations in speed and the pattern of use can

(Continued on page 8)

give clues about the source. For example, this might be a washing machine or drier, sewing machine, electric lawn mower, food mixer, electric drill, hair dryer or even a model railway. It is not likely to be a refrigerator as these normally use induction motors which do not produce EMI.

Thermostats

Faulty thermostats can arc for 1 - 30 seconds or more producing broad band EMI with no peaks and 100Hz modulation. This may be heard on a number of HF and/or VHF bands. The most common source is a faulty gas central heating boiler thermostat and it is likely to be worse in winter. The arcing may occur at every 5 - 20 minutes although in some cases it could be as often as two or three times per minute.

Conventional fluorescent lights

EMI from fluorescent lights is broad band with no peaks and is modulated with a 120Hz buzz, mainly on the LF, MF and lower HF bands. Fluorescent lights have been required to include EMI suppression since 1978 although most met the relevant standard long before this date. If the tube is worn out and flickering at 60Hz, this can increase the level of EMI

Dimmer switches

EMI from dimmer switches is similar to that produced by fluorescent lights and is stronger when the lamp is dimmed than when on full brightness. Dimmer switches sold in the Canada have been required to include EMI suppression since 1978 although most met the relevant standard long before this date. They seldom cause problems to amateur reception unless they are faulty or are a type not designed for the Canadian market - hint hint eBay buyers of Chinese products.

Computers

Various oscillators in a computer and its associated components such as the keyboard and mouse can produce narrow band radiated emissions. Some are crystal controlled and generally have no drift or modulation while others use a ceramic resonator which drifts and may have slight frequency modulation which can be heard as a 'warbling' noise on an SSB or CW receiver. Such modulation may sound like someone typing on a keyboard or playing a game. Almost all PCs have a crystal oscillator at or near 14.318MHz although this signal may not be particularly strong. Nevertheless, if it is present at the same time as other signals, this shows that the other signals are likely to come from a computer. In many cases, a computer monitor radiates more EMI than the computer itself. In addition to broad band emissions from the SMPS in a computer monitor, there may be line time base harmonics which are similar to TV line time base harmonics except that the spacing is larger (31 kHz or more). There are numerous different line frequencies depending on the screen resolution and refresh rate. Computer line time base harmonics normally give a very pure crystal-controlled note and are likely to be strongest on the 1.8 and 3.5MHz bands.

Intruder alarm systems.

Intruder alarm systems normally contain a microprocessor and can radiate signals from the wiring to the sensors on the HF and/or VHF bands. As they normally use a ceramic resonator, the har-

monics drift slightly and may have slight modulation which can be heard on an SSB receiver. This modulation may change if the alarm ever goes off and may also change when the user presses keys on the control panel.

Other digital electronic devices.

Digital electronic circuitry can radiate narrow band signals on certain frequencies such as harmonics of the clock frequency and may also produce broad band signals. Such sources include NICAM decoders and other digital electronics in TV sets, video recorders and satellite receivers/decoders. Many of these devices are connected to long cables which can radiate EMI on HF bands as well as VHF.

Cable TV

Many modern cable television systems use vision carriers from 128MHz upwards on multiples of 8MHz up through the 2 metre Ham band. The street cabinets normally contain a switch-mode power supply which may produce detectable emissions on the HF bands due to common-mode signals conducted along the coaxial cables.

Telephone equipment

Fax machines contain a microprocessor which runs continuously. If a computer is connected to a modem, this can allow EMI from the computer to be radiated via the telephone line. If the modem can receive fax or voice calls, the owner may leave the computer running all the time. If a telephone subscriber has an ISDN (Integrated Services Digital Network) line, the line carries 90V DC which powers a switch-mode power supply in the customer's premises. Some types of ISDN equipment at the customer's premises can produce EMI when a call is in progress. Businesses and even some homes may have their own internal telephone exchange or PABX. Some types can produce EMI on the HF and VHF bands.

Emissions from overhead telephone lines

If the EMI is strongest under telephone lines or close to a telephone pole, the source could be one of the items mentioned above but in many cases, it is something completely unrelated to the telephone system. If anything feeds EMI onto the AC in a house, this can be coupled onto telephone wires via the AC transformer of any Hydro powered telephone equipment such as an answering machine or a cordless phone.

Vehicles - Ignition systems

Although there have been regulations controlling ignition interference since 1952, this can be a problem for weak signal reception near a busy road. Many transceivers contain a noise blanker which is effective against the short impulses from vehicle ignition systems.

Remote keyless entry receivers

Some cars made since mid 1994 use radio keys operating on 433.92MHz. Radio key receivers in some cars contain a local oscillator which runs continuously somewhere in the range 433.275 - 433.475MHz. Other types use a super-regenerative receiver and some aftermarket alarms sold in 1994 and 1995 can emit broad band noise across the 430-440MHz band

Miscellaneous

Touch Lamps

These are table lamps with a touch-operated switch which turns the lamp on and off and selects several levels of brightness. They contain a sawtooth oscillator which operates continuously and produce emissions which are similar to an SMPS but with a fundamental frequency of around 190kHz. Some models sold before 1996 contain no EMI suppression.

Garage door openers

The super-regenerative receivers for some 173MHz remote-controlled garage door openers manufactured in the late 1980s radiate broad band noise on 430-440MHz. They can also receive VHF radio paging and rebroadcast it at a number of frequencies on the 430-440 MHz band!

Water conditioners

Electronic water conditioners are claimed to reduce deposition of lime scale. Some types such as the "Water King" and "Water Imp" use a sequence of audio frequency tones which have harmonics up to 28MHz in some cases. The radiated emissions have a very unusual characteristic as the tone changes about once a second in a sequence which repeats every few minutes.

Electric fences

EMI from an electric fence is a regular clicking noise. The source is likely to be a sparking at a faulty insulator rather than the electric fence unit itself. Try looking for flashovers in the dark (with the landowner's permission).

Overhead power cables

Overhead power cables can radiate broad band noise with 120Hz modulation. High voltage cables always produce a certain amount of EMI due to corona discharge from the cable itself but EMI can be greatly increased due to arcing at a faulty insulator, in which case, the level of EMI may reduce in dry weather.

Radio Paging

This sounds rather like packet radio but usually starts with a tone. Strong signals from nearby radio paging transmitters may be heard on the 2 metre band or other bands but in most cases, such breakthrough is caused by shortcomings in the amateur receiver. Transceivers with extended receive coverage are more likely to be affected than those which only cover amateur bands. Hand-held transceivers connected to an outdoor aerial can be particularly susceptible.

Power line Adaptors (PLAs)

In recent years these have become a serious source of interference. They are sometimes used for networking computers but the most common use is for video distribution. Generally they minimize emissions in the amateur bands (known as notching) so that interference is most likely to be noticed on the HF broadcast bands.

Your Cell Phone

My phone's Bluetooth makes a strange rhythmic buzz in one pair of my computer speakers when it communicates with its companion Bluetooth device. Took me days to figure that out, but just

one pair, not any other in my ham shack? Cheapest solution was to turn the cell phone off!

Searching for the Source

Basically, the first step is to determine if the noise is household noise or neighbourhood noise or atmospheric noise...the latter we can't do much about except put up high-gain, highly directional arrays to increase your signal to noise ratio.

Start out by recording the noise floor on 80 & 20 meters, either via the S-meter or padaptor.

Put a 12volt car battery across the terminals of your power supply, fully charged of course.

Then turn on **everything** in the house and I mean everything... Best to do this test with the family away for 2-3 hours... Record the result.

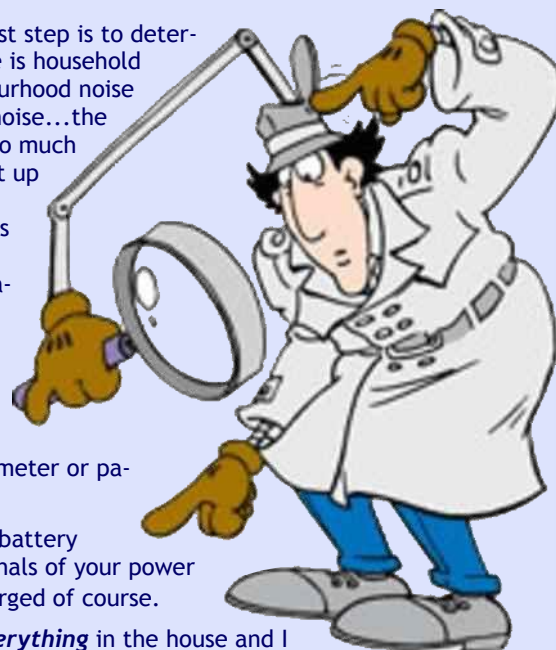
Step Two? or three...?

Turn **off** all the circuit breakers so there is no AC coming into the house... the only thing on in your house should be your transceiver, powered by the battery.

If the noise goes away, it must be household generated (duh). Turn the volume up [if you don't have help] and turn on one circuit breaker at a time... until the noise returns... then on the breaker that causes the highest return of the noise floor... the next step is to turn off all the others you've turned on so far... then locate what is still on in the house and one-by-one turn it off [or unplug it], until the noise goes away... and hopefully you have located the RF noisy device or devices... before the fridge defrosts. You may need to repeat this to find multiple sources of noise.

Again, look for noise sources in Ryobi battery chargers, Plasma TV's, switching power supplies, electric blankets, electronic bug zappers, electric fences, cell phone chargers, cordless phone chargers, electronic exercise equipment, air ionizers or conditioners, electronic light dimmers, timers, readouts that are multiplexed [scanned], computers made between 2000 and 2007 as the CPU oscillated at some direct or harmonic frequency on various ham bands. One of my main computers generates birdies all up and down the 75/80 meter band - about 3 'S' units of buzzes, clicks and tweeting birdies! Any computer that doesn't run in the GHz. range is a potential source of HF noise.

Don't rule out your hot tub motors, timers and heaters too... pumps for the pool and especially as the starter capacitor ages, fridges and freezer with induction motors shouldn't be an issue, but don't rule them out. Run the microwave oven too... they leak



no matter how good it is... and the older the unit, the more it leaks RF. We know some florescent fixtures can be noisy, even some of the new energy efficient ones.. they can be the worst offenders and, don't forget the toxic mercury-filled "eco-bulb" we are almost forced to use.

Check the house ground rod connection, and any device that has a ground connection. Don't just tighten, take it off, burnish it, add some anti corrosion compound and re-attach.

Neighbourhood noise.... Sodium & Mercury Street lights, their ballast noise, Shaw cable boxes not properly grounded (they use the 2 metre ham band as a signal carrier) If it's not grounded properly or the box is left open, your RF signal interferes with cable and vice versa... (in VHF).

Landscape wiring, electric fences, electronic pet barriers, solar panel inverters are very RF dirty. Only one or two of the more expensive ones are RF suppressed, all others radiate like an unprotected spark-gap transmitter!

Bad pole insulators, old pole transformers (or loose connections as Fred VE7IO was telling us about at breakfast that morning.) Just about any motor with brushes and spark plugs.

On the HF bands, interference can enter your home via the AC [Hydro] supply whether underground or overhead and can be radiated by your wiring. In such cases, switching off a double pole main switch at the fuse box will probably reduce it, although this depends on the exact layout of your Hydro wiring. Pickup of AC-borne interference on the HF bands can often be reduced by moving your aerial further from the AC wiring [if possible], or by using a balanced aerial such as a dipole instead of an end-fed aerial. Aerial and Antenna - the same thing.

If it is not in your own home, the next step is to go out and search for it using a portable transceiver or receiver, or get someone to help you if you are unable to do this yourself.

In the case of HF Hydro borne interference, the source is likely to be on the same phase as your own main supply. In a street of houses, every third house is normally on the same phase. On VHF, if you have an aerial on a rotator then it should be possible to get some indication of the direction of the source. EMI which occurs continuously or frequently can often be located without a directional aerial, simply by going around searching for the strongest signal.

For EMI which only occurs intermittently such as an arcing thermostat, a portable directional aerial is very useful. In either case, the receiver should have an 'S' meter, preferably a moving coil type. It is also useful to have an attenuator to reduce the sensitivity when you get closer to the source.

One possible problem is that EMI which is quite strong when using your main station aerial cannot be heard at ground level on a portable receiver. For a narrow band source, the maximum sensitivity is achieved by using CW mode with the narrowest possible bandwidth such as 500 Hz. For broad band sources such as arcing, greater sensitivity is achieved by using a receiver with the widest possible bandwidth. The first thing to establish is whether the source of the EMI source is nearby (within about one hundred metres for example) or further afield such as the next street or even the next town. Getting someone to drive you around the

local roads in a car with a portable receiver connected to the car aerial may show a clear peak at a certain point which is not apparent when walking. If interference is being conducted along telephone wiring or Hydro wiring, there may be a number of peaks which coincide with telephone poles, overhead power lines or lamp posts.

Lower HF bands

If interference affects the 1.8MHz amateur band, it may also be audible on an MW broadcast receiver.

Alternatively, a ferrite rod aerial with an MW coil can be tuned to the 1.8 MHz amateur band and connected to a portable HF receiver using a 2 turn coupling winding to match into a 50Ω receiver input.

For 3.5MHz, the main winding on the ferrite rod should be about 20 turns tuned with a 200 pF variable capacitor. A 1 or 2 turn coupling winding should be used. A ferrite rod aerial is recommended for D/F-ing EMI on the 1.8 and 3.5MHz bands because it can be held right down on the ground to detect the magnetic field from EMI propagating along underground cables as a common mode signal (that is, on all conductors together relative to earth). If properly balanced, a ferrite rod aerial gives a minimum signal when the rod is pointing towards or away from the source but this direction finding property can give misleading results in built-up areas or near overhead cables because MF/HF interference can travel for hundreds or thousands of metres along Hydro wiring or telephone wiring (particularly if overhead).

Standing waves can cause the signal strength to rise and fall at intervals along the line. With any EMI from overhead cables, it is best to search for it on the highest frequency possible, moving higher as you get closer. If you want to follow overhead power cables across land without a public right of way, permission should be obtained from the landowner before entering. If you can identify which pole is responsible, make a note of its number and report it to BC Hydro. Do it well or contact the right person and they won't laugh at you. After all they use the word "Authority" in their advertising.

Higher HF bands

The tendency for interference to travel along wiring decreases as frequency increases so it is better to search for interference on the highest frequency on which it can be heard. In practice, it will probably be necessary to listen on a frequency above the MUF where the HF bands are quiet. The 28MHz band is a good band to use and a direction finding loop can be made for the task. Such a loop may not be sensitive enough without a pre-amplifier however. When you get closer to the source, try to find it on a VHF band but check that the VHF signals have the same characteristics as the HF signals and are not coming from a completely different source!

VHF bands

On 144MHz, it is possible to use a horizontal half wavelength dipole with a balun for direction finding. This gives a minimum signal when pointing towards or away from the source although it can give misleading results if the source happens to be vertically polarized. It is also possible to use a yagi aerial which gives an unambiguous direction bearing. If the source appears to be verti-

cally polarized, the yagi can be used vertically, otherwise horizontal polarization is preferable because the aerial has a narrower beamwidth when used horizontally. A 4 or 5 element yagi is about the largest which is reasonably portable at 144MHz. An HB9CV is of some use but the main lobe is very wide and the directional bearings can 'squint' due to the unbalanced feed. To correct for 'squint', turn the aerial over, take another bearing then average the two.

It is important to remember that at 144MHz, direction finding in a built up area can give misleading results due to reflected signals from buildings, lamp posts, cars, etc. It is therefore necessary to take a number of bearings from different locations as no single direction bearing can be regarded as reliable. If D/F-ing from a car, remove any 144MHz mobile aerial before taking a directional bearing as this can reflect signals. It should be noted that Time Difference Of Arrival (TDOA) and ring Doppler direction finding techniques are only suitable for D/F-ing a coherent carrier and cannot be used on random noise from motors or thermostats.

The 50MHz band is less prone to reflections than 144MHz but the only reasonably portable direction finding aerial is likely to be a loop. Another possibility is to use an 88-108MHz FM broadcast receiver tuned between stations with a 3 element FM aerial.

UHF bands

If EMI can be heard up to the 70cm band, a 10 element 70cm band yagi makes a good direction finding aerial but at UHF, more care is required to avoid misleading results due to reflected signals.

Finding thermostats

A thermostat which arcs for perhaps 20 seconds every 10 minutes can be most annoying but difficult to find. If it is very close (less than about 30 metres), it may be possible to detect it using a UHF portable TV set with a 10 element UHF TV aerial. The wide TV IF bandwidth is an advantage when searching for a broad band source. The TV set should be tuned to a channel where there is no signal. It is important to make sure that the channel is free of any digital television signals as these look like noise on the screen but with a coarser 'snow' than true white noise. As arcing thermostats are modulated at 100Hz, they produce two darker bands of noise on the TV screen which are darkest when the aerial is pointing at the source. If your portable TV receiver has a video output via a SCART or phono connector, it can be used for locating broad band UHF sources of EMI by tuning it to a channel where there is no signal and listening to the video output via an audio amplifier or crystal earphone. An arcing thermostat produces a distinctive rasping sound which is clearly distinguishable from the background noise. If a suspect gas furnace has a flue which is near the street or near your property, it should be possible to hear when it lights up and switches off, particularly with a fan-assisted [forced-air] system. If you listen on a portable receiver at the same time, an arcing thermostat will produce a burst of EMI lasting for a few seconds or more each time the furnace turns off and possibly when it turns on. Going from an old mercury switch to a solid state thermostat "may" fix the problem... or create a new one!

Residential property

If you decide to approach the occupier of a house or flat where you think the source of the interference is, bear in mind that the occupier will probably want to be sure of your identity and your

motive before letting you in. It is a good idea to write or telephone first to gain their confidence and arrange a convenient time for a visit. Remember that the source may not actually be where you think it is so you should say that there may be something in the house or flat which is causing interference. In most cases, the only way to prove what is causing the EMI is to ask the owner to switch off various electrical equipment until the source is found. In most cases, there is no fault in the equipment in question and only amateur bands are affected.

A diplomatic approach is therefore essential as the owner of the equipment is under no obligation to do anything about the EMI so it can only be reduced with their cooperation. Any EMI reduction should be restricted to measures which can be fitted by the owner without the need for you to touch or dismantle the equipment in question. In some cases, for example a faulty thermostat, the EMI is likely to interfere with the owner's broadcast radio or TV reception and may affect neighbours.

Commercial or industrial premises

If EMI appears to be coming from an office, shop, factory or other commercial premises, some effort may be required to make contact with the right person. In the case of a large company, there is probably an office services manager, building services manager or technical manager whom you could contact. If you are lucky, there may be a licensed radio amateur working on the site somewhere and he or she could be a very useful contact.

In any case, it is best to write or telephone first and ask to make an appointment to see the appropriate person. With luck and a diplomatic approach, they may be prepared to take you around the site to look for the source. You will need to take a portable receiver as it probably won't be possible for equipment to be turned off.

Reducing the EMI

If you prove conclusively that a certain piece of equipment is producing EMI, it is worth trying to find out full details of the make, model number and date of purchase so that a complaint can be made directly to the manufacturer or importer. A polite and technically well-informed approach is recommended when dealing with manufacturers. The equipment probably met all necessary standards at the date of manufacture so the only way forward is on a good will basis. The best approach when dealing with manufacturers is usually to phone first and find out the name of the person responsible for EMC then follow up the phone call with a letter, fax or e-mail. It is also worth finding out whether a newer model is available with reduced EMI. In some cases, the manufacturer may be prepared to provide a filter or exchange the equipment in question for a newer model at a reduced price.

Of course, if none of this works... and you still have an S9 noise floor... you can always move to the country. A good friend has an "impressive" radio shack out beyond 200th amongst the cow paddies and he has a S-0 [that's zero] noise floor... yeah... no noise... none... nada... zilch... and there are so many more stations on his radio than mine... He hears the world - I hear Californian and Texan Kilowatts and OH8X with the world's largest Amateur Radio antenna!

'Net' Working

Internet Resources for Hams

Contesting (also known as radiosport) is a competitive activity pursued by amateur radio operators. In a contest, an amateur radio station, which may be operated by an individual or a team, seeks to contact as many other amateur radio stations as possible in a given period of time and exchange information.

Contesting grew out of other amateur radio activities in the 1920s and 1930s. As transoceanic communications with amateur radio became more common, competitions were formed to challenge stations to make as many contacts as possible with amateur radio stations in other countries. Contests were also formed to provide opportunities for amateur radio operators to practice their message handling skills, used for routine or emergency communications across long distances. Over time, the number and variety of radio contests has increased, and many amateur radio operators today pursue the sport as their primary amateur radio activity. There is no international authority or governance organization for this sport. Each competition is sponsored separately and has its own set of rules.

If you're interested in the 'sport' of Amateur Radio—contesting then the [Contesting Compendium Wiki](#) is a good place to start. Their goal is suitably modest - they simply want to collect all the world's good information about amateur radio contesting and make it accessible from a single portal. If you're a new tester, or just curious about what this ham radio contesting thing is, you can start with these articles:

September Contest Calendar

September 2 -- NCCC Sprint Ladder

September 3 -- Wake-Up! QRP Sprint; GCW Straight Key Party; Russian Radio WW RTTY Contest

September 3-4 -- Colorado QSO Party; QCWA Fall QSO Party; All Asian DX Contest (Phone); CWops Mini-CWT Test

September 4 -- DARC 10 Meter Digital Contest

September 4-5 -- Tennessee QSO Party

September 5-6 -- Michigan QRP Labor Day CW Sprint

September 6 -- ARS Spartan Sprint

All dates, unless otherwise stated, are UTC. See the [ARRL Contest Branch page](#), the [ARRL Contest Update](#) and the [WA7BNM Contest Calendar](#)

[Introduction to Contesting](#) from Wikipedia.

[Getting started in contesting](#)

Don't overlook the wealth of other operating information on the site. There are many articles covering basic operation, DX, propagation and the technology that allows you to be a more proficient operator, whether you contest or not.

Keep checking in. With a little help from our contesting Elmers the Compendium will get better and better.

Next SARC Meeting - September 14th

The first meeting of the Fall is Sept. 14th. The meeting will be devoted to talking about the year ahead including the program for monthly meetings and what we would like to accomplish as a club. We need your input so that the things we do in the coming year will be of interest, allow you to get more from your hobby and contribute services to the community. Is there something special that you as a member wish we would do, can you point us to a speaker that has been a hit at other club meetings, or do you simply have some ideas for doing things better? We're going to put you to work as there are many tasks, big and small, from being responsible for meeting refreshments, to looking after maintenance of the beams and towers, and many others in between.

If you have some special talent, training or skill that would steer you to a specific job, then don't fail to let it be known... we could use you. Also, we should have more details of an exciting new group within SARC, which we may call the "contesters group" or "proficient operators group" or something similar. Overseeing this group will be a couple of pros who will guide us to further levels of achievement. You will find an introduction to this in the President's Report on page 16 of the Communicator.

Gary Skett, VE7AS is our Training Coordinator. He asks for suggestions, or requests for what each member would like to have presented at meetings? What topic, subject or specific question would you like to have answered? Suggestions should be Ham radio related that can be answered in an hour or less in a general meeting. If there is a topic or special interest group that we could cover in a half or full day seminar, then what would that be?

Please send requests to Gary VE7AS via e-mail at ve7as@rac.ca

QRM

...from the Editor's desk



Do you have a photo or bit of club news to share?
Email it to ve7ti@separs.net for inclusion in this column.

Welcome back from summer break and to another season of Amateur Radio in Surrey. This promises to be an informative and entertaining year ahead as your SARC Executive are planning a diversified program of meetings geared to both experienced and novice hams. The Communicator will be published around the first of the month going forward. Hopefully this will give you a heads-up on the coming meeting program and stimulate you to come out as an active member.

On a personal note, your Editor has been working to erect a small tower this summer. The project started with some very rusty used mast sections. A bit of welding, lots of rust remover, steel wool and elbow grease cleaned it up and it is now painted and about to rise from the ground on a freshly poured concrete pad. Two sources that have been very useful, and deserve special mention are Pacific Fasteners (www.pacificfasteners.com) at 3934 East 1st Avenue in Burnaby and Scott Road Trading at 12855 King George Blvd., Surrey (www.scottroadtrading.com). Pacific Fasteners was able to supply all my stainless steel tower hardware (3 sized of bolts, washers and nuts) and charged me the ridiculously low price of \$5. I figure Rona or Home Depot would have been close to \$50!

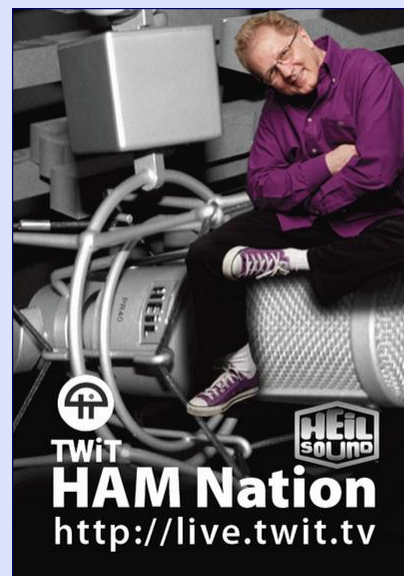
Scott Road Trading was the supplier of aluminum angle stock used for my support brackets. They sell new and used steel, brass and aluminum by the pound and 11 lbs (about 6m) of aluminum angle cost me \$15. Contrary to my expectations, the staff there was helpful and once I explained my need, directed me to the appropriate pile where I filled my requirements after about 5 minutes of scavenging. It is a salvage yard so wear appropriate clothing and footwear.

I hope to write an article on the refinishing process later this year as others may benefit from my experiments, trials and tribulations.

There have been many positive comments on The Communicator, thank you. This is meant to be a resource so please send feedback, especially suggestions for content. One comment suggested an area for Ham Radio Swap & Sell. This is available on the Tuesday evening SARC Net, although I cannot recall anyone listing an item, but I'm prepared to add a section if there are ads to run. So... if you have an Amateur Radio related item for sale, swap or a 'want', send me an email at ve7ti@separs.net

One last comment for this month. The SARC-LARA flea market on Sunday, August 21 was a great success. There were lots of attendees and many great bargains. Another ham who could not attend, dropped a large box of QST, 73, TCA, Ham Radio and Radio World magazines at my QTH and I lugged them to the flea market hoping to do someone a favour with free magazines. Despite the dated ads, these are a treasure of newbie tech articles, homebrew antennas and projects. I lugged most of them home again where I will reluctantly send them out with my recycling as I don't have the room to store them, what a waste! Newbies... don't overlook these publications as a learning resource. They are just as informative as the books and manuals that you pay big bucks for and many of the articles are written in a friendlier style that give personal glimpses into our hobby and its history.

~ John Schouten, VE7TI



TWiT

HAM Nation

<http://live.twit.tv>

Snapshot

SARC-LARA Flea Market



News You Can Lose The Lighter Side Of Technology



March was when our son celebrated his 17th birthday, and we got him an iPhone. He just loved it. Who wouldn't?

I celebrated my birthday in July, and my wife made me very happy when she bought me an iPad.



Our daughter's birthday was in August so we got her an iPod Touch

My wife celebrated her birthday in September so I got her an iRon.

It was around then that the fight started... What my wife failed to recognize is that the iRon can be integrated into the home network with the iWash, iCook and iClean.

Put your station on wheels with Mobile DX Amateur Equipment" in stock at Valley Electronic Supply



MULTI-ELMAC

Equipment for mobile or fixed station operation

A. AF-67 Xmtr/Excit. AM • CW • NFM
160, 80, 40, 20, 15, 10 meters.
6 or 12V D.C. or 115V A.C.
Amateur net: \$177.00

B. PMR-7 Rcvr. AM • CW • SSB
Dual conversion. Xtal controlled
2nd osc. Variable injection BFO.
Bdct., 160, 80, 40, 20, 15, 10 meters.
6 or 12V D.C. or 115V A.C.
Amateur net: \$159.00

GONSET

Equipment for mobile or fixed station operation

C. G-66 Rcvr. AM • CW • SSB
Xtal controlled 2nd conversion
osc. RF burn-out protection.
Bdct., 160, 80, 40, 20, 15, 10 meters.
6 or 12V D.C. or 115V A.C.
Amateur net: \$169.50

Matching 3-way power supply
Amateur net: \$39.95

D. 6 Meter Converter
Use with conventional auto or home radio.
Has Gonset noise clipper.
Optional 6 or 12V heater.
Amateur net: \$47.50

HARVEY-WELLS

E. T-90 Xmtr. AM • CW
90 watts CW, 75 watts phone.
Mobile or fixed operation.
80, 40, 20, 15, 11, 10 meters. 6 or 12V D.C. or 115V A.C.
Amateur net: \$179.50

VPS-T90 6/12V D.C. Supply
Amateur net: \$89.50

APS-90 115V A.C. Supply
Amateur net: \$79.50

MASTER MOBILE

F. Body Mount & Micro-Z-Match

Body mount is heavy duty stainless

steel. Coax connection.

Amateur net: \$15.95

Others from \$8.75 up

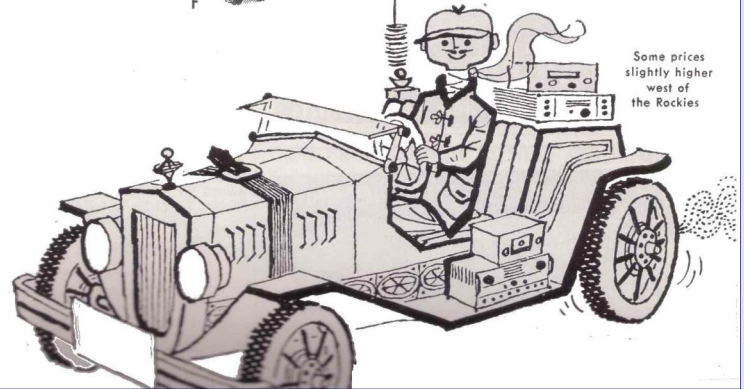
Micro-Z-Match operates on all bands.

Matches coax cable to any mobile

antenna. With coax adaptor kit.

Amateur net: \$7.95

Sold separately or as a single unit.



Another ad from yesteryear, this one from 1956. Consider comparatively how prices for Ham gear have come down over the years!



The Flea Market's 4 Johns: L->R John Brodie, John Schouten, John Knowles and John MacKay. The 4 Daves wouldn't stand still long enough.

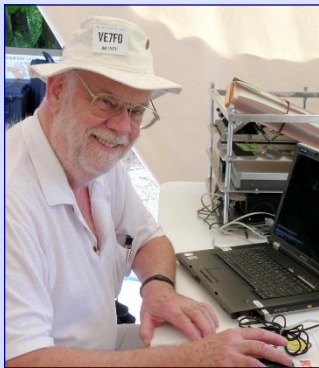
SARC President's Comments

John Brodie VA7XB



Spotlight on Jim Smith VE7FO and the Operator Skills Program

If you read the July Communicator (Field Day edition) you would know that there have been stirrings of interest in creation of a Contest Group, as a result of an offer by Jim Smith VE7FO. This arose out of a concern that we have insufficient number of skilled operators to meet our objective of achieving a respectable FD score. Since then, the focus has widened from strictly contesting skills to operating proficiency in general, a topic which might be of interest to a greater spectrum of amateurs including VHFers, em-comm types and those who simply wish to get more from their hobby. We throw the notion out to the membership for discussion with the hope that it will evolve into something tangible, productive and *feasible*. Once we have a clear idea of what we are trying to achieve, it will be clearer what this group should be called. For now let's call it "Operator Skills Program".



First, the qualifications of Jim Smith VE7FO, who has been involved with VECTOR over the years, assisting that group with Field Day training and organization and mentoring contesting skills. In case you are not convinced that Jim is the guy who can

lead us through an operator skills training process, here are some of his contest credentials:

- #1 VE in ARRL RTTY Roundup two years in a row, once from home and once from VE7UF
- #1 VE in ARRL Phone Sweepstakes
- #1 VE in JIDX Low Band CW
- #1 VE in CQ RTTY WPX
- RAC Canada Contest Champion for VE7

- Many, many #1 VE7 in all major contests
- As a key member of the VE7UF Super Station team
 - ◆ CQ WPX RTTY 2011 #1 VE, #2 NA, #4 World
 - ◆ He is also responsible for the IT function, station documentation, score analyses, operator recruiting and op scheduling.
- Pacific NW Challenge Trophy Co-ordinator for both the BC DX Club and the Orca DX and Contest Club. This is an annual competition among the BC DX Club, Orca DXCC, Spokane DX Ass'n, Western Wash DX Club and Willamette Valley DX Club.
- Appointed to membership in the A1 Operators' Club (An ARRL Award)

Jim identifies 5 skill levels: Newbie, Novice, Basic, Competent and Advanced. The majority of SARC's membership will fall into the first 3 categories. If we are to excel at Field Day and other contests, we need to move more operators into the last 2 categories. For this to happen, some considerable effort will be required.

Here are a few questions that need to be answered before we decide how to structure a program that allows each of us to move into to a higher level:

- Should a skills program be focused on: a) general operating, b) contesting, c) em-comm, or all three?
- What should be the scope of the program given the time and resources available?
- To what extent might we be duplicating existing programs?
- Should there be certification of achievement at various levels?
- Where and when would training be done?
- How many potential candidates do we have to work with?
- Should potential station managers be included in another level of training?
- Above all, what is it that we wish to accomplish in, say, 9 months time?

Please think about these questions before the first SARC meeting of the Fall, on September 14th.

DOWN THE LOG...

SARC Monthly Meetings

2nd Wednesday (Sept-Jun)
1900 hrs local at PEP PREOC,
14275 96th Avenue, Surrey, BC

Weekly Club Breakfast

Friday at 0830 local
ABC Country Restaurant located
at 600 - 7380 King George Blvd.
Surrey

SARC Net

Tuesday at 2000 local
on 147.360 MHz (+) Tone=110.9

SEPARS Net

Tuesday at 19:30 local
on 147.360 MHz (+) Tone=110.9

Announcements & News

Next SARC Meeting
Wed. Sept 14th 7pm @ PREOC
Planning for 2011-2012

SEPARS Monthly Workshop
Thurs., Sept. 15, 7 to 9:30pm
Rm. 214, 13569 76th Ave.

SEPARS Training
Saturday morning, Sept 24th,
Firehall #1—Operation of the
Radio Room in an emergency.

On the Web ve7sar.net

Between newsletters, watch your e-mail for announcements of events, monthly meetings and training opportunities. These announcements may also be found on our web page.

SARC hosts an Amateur Radio net each Tuesday evening at 8 PM. Please tune in to the VE7RSC repeater at 147.360 MHz (+600 KHz) Tone=110.9, also accessible on IRLP node 1980 and Echolink node 496228. On UHF we operate a repeater on 443.775MHz (+5Mhz) Tone=110.9 and IRPL node 1463. Coming soon, a repeater at 224.000MHz (-1.6MHz).

VIA THE WEB

www.ve7sar.net

Webmaster Hiu Yee
VE7YXC

Editor: John Schouten
ve7ti @ rac.ca

TELEPHONE & ADDRESS

(604) 591-1825

va7xb @ rac.ca

12160 Boundary Drive S.
Surrey BC V3X 2B7

CONTACT